

When OSPF is running on a given loopback interface, it sees the network type of "LOOPBACK" and it knows that it can not establish an adjacency through that loopback interface with another router so it advertises that loopback as a host route or the only IP address on that logical interface.

You can tell OSPF that it is not a loopback and it is a point-to-point network type, and OSPF says "OK I am going to advertise the interface with its correct mask".

In MPLS environment where OSPF is the IGP in the core, and you have configured the loopback interface of a given PE router with a /24 mask, you can have some problems, because there is going to be a discrepancy, the loopback's mask is 24 but OSPF is advertising a mask of /32.

The screwed up part of the entire thing is that you only get one console error, the following is the console error:

```
%BGP-4-VPNv4NH_MASK: Nexthop 2.2.2.2 may not be reachable  
from neighbor 4.4.4.4 - not /32 mask
```

Actually there is an error in the error message, when it says "Nexthop 2.2.2.2 may not be reachable from neighbor 4.4.4.4" it should say it will NOT be reachable.

Explanation:

A VPNv4 route is being sent to the IBGP neighbor. The address of the next hop is a loopback interface that is configured let's say with a mask of /24. OSPF is advertising a mask of /32. This advertising conflicts with LDP, which uses configured mask.

If you go to the PE's neighboring "P" router and do a "show mpls ldp binding x.x.x.x/32" you won't see anything, but if you do a "show mpls ldp binding x.x.x.0/24" you will see an entry there.

Therefore, LDP neighbors may not receive a label for the route indicated in this error message. This condition breaks connectivity between sites that belong to the same VPN, meaning that the customers will see the route in their routing table but they won't be able to reach them.

There are few solutions to fix this problem, one solution is to reconfigure the mask to be /32, another solution is to configure the loopback interface with "ip ospf network point-to-point".